

BEFORE THE OHIO POWER SITING BOARD

In the Matter of the Application of)	
Big Plain Solar, LLC for a)	
Certificate of Environmental)	Case No. 19-1823-EL-BGN
Compatibility and Public Need)	

DIRECT TESTIMONY OF MATTHEW ROBINSON

Q.1. Please state your name, title and business address.

A.1. My name is Matthew Robinson. I am a Visualization Project Manager at Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C (“EDR”). My business address is 217 Montgomery Street, Suite 1000, Syracuse, New York 13202.

Q.2. What are your duties as a Visualization Project Manager?

A.2. As Visualization Project Manager I am responsible for the oversight of all technical analyses associated with visual impact assessments. This includes identification of visually sensitive resources, field evaluation and documentation, visibility analyses, development of detailed and accurate visual simulations, determination of impacts, mitigation conceptual design and report production.

Q.3. What is your educational and professional background?

A.3. I graduated from the University of Vermont in 2005 with a Bachelor of Arts in Political Science and from Cornell University in 2010 with a Master’s Degree in Landscape Architecture. After the completion of each degree, I worked at LandWorks in Middlebury, Vermont as an Associate Landscape Architect and Project Manager. During my six years at LandWorks I managed a variety of visual impact assessment, landscape architecture, and planning projects. I have previously overseen visual assessments, visual

1 screening, and landscaping design for a number of solar projects, including the Angelina
2 1 Solar Project, Yellowbud Solar Project, Battle Creek 1 Solar Project, Ryegate GLC
3 Solar, and Otter Creek I & II Solar Projects.

4 **Q.4. On whose behalf are you offering testimony?**

5 **A.4.** I am testifying on behalf of the Applicant, Big Plain Solar, LLC, in support of its
6 application filed in Case No. 19-1823-EL-BGN.

7 **Q.5. What is the purpose of your testimony?**

8 **A.5.** The purpose of my testimony is to describe the Visual Resource Assessment
9 (“VRA”) my firm undertook on behalf of the Applicant, to summarize the results of that
10 assessment, and to provide my overall assessment of the potential visual impact of the
11 Madison Solar Farm (“Project”). A copy of the VRA is included in the Application as
12 Exhibit T. I will also testify regarding the updated viewshed analysis the Applicant filed
13 with its Notice of Footprint Modification on November 30, 2020.

14 **Q.6. Please describe the study that you and your firm undertook on behalf of the**
15 **Applicant.**

16 **A.6.** A VRA was prepared to satisfy those portions of the requirements of Ohio
17 Adm.Code 4906-04-08(D)(4) that relate to the identification of visually sensitive
18 resources and potential visual impacts associated with the installation of the proposed
19 facility. Visually sensitive resources are defined as any formally adopted area of historic,
20 recreational, cultural, natural, and scenic significance. Examples of visually sensitive
21 resources include properties on the National Register of Historic Places, State Parks, and
22 cemeteries, among others. Of note, on April 27, 2020, the Applicant filed a motion for
23 waiver of Ohio Adm.Code 4906-4-08(D)(2) and (D)(4), to allow a reduced study area

1 regarding the impact on landmarks and visual impact of the Project, from a ten-mile
2 radius to a five-mile radius. The Administrative Law Judge granted the motion on July 7,
3 2020.

4 EDR conducted background research of publicly available documents to compile a
5 database of any potential visually sensitive resources located within the visual study area
6 (a five-mile radius area around the Project site). Next, a viewshed analysis was
7 performed in order to identify geographic areas and resources with potential Project
8 visibility. The viewshed analysis incorporated and considered the screening effect of
9 structures and vegetation, as captured in high-resolution lidar data from the Ohio
10 Statewide Imagery Program. Additionally, the viewshed analysis was also prepared for
11 the collection substation. The tallest proposed component of the substation are narrow
12 lightning masts, with a maximum height of 58 feet. Because the precise substation
13 location was not known at the time of the analysis, the analysis was run based on five
14 representative points within the collection substation footprint, each with an assigned
15 height of 58 feet.

16 EDR conducted three site visits from July through October of 2019. The visits served the
17 following purposes: 1) provided a basis for the description of the existing visual
18 environment, 2) verified the existence of visually sensitive resources, 3) identified
19 additional resources of local importance, 4) verified the results of the viewshed analysis,
20 and 5) captured photographs and location data for eventual use in the production of visual
21 simulations. Visual simulations from four representative viewpoints were produced.
22 Each represented various distance zones, user groups, and landscape similarity zones
23 found throughout the visual study area. Once complete, the simulations were evaluated

1 by a visual expert and used to characterize the type and extent of visibility and visual
2 impact likely to result from the Project. The methodology and results of the evaluation
3 are then presented in the VRA report.

4 **Q.7. What was your role in the VRA conducted for the Application?**

5 **A.7.** My role was to manage and provide oversight of the analyses contained in the
6 VRA, including 1) planning, scheduling, organization, and staff management, 2)
7 conducting field reviews, including photography for use in the development of visual
8 simulations, 3) production and/or oversight of the individual analyses and products
9 contained in the VRA (e.g., report, figures, tables, and visual simulations), and 4) providing
10 communication with the Applicant regarding the study's progress, results, and Project
11 implications.

12 **Q.8. What were the results of the VRA you performed?**

13 **A.8.** The viewshed analysis indicated that the majority of visibility is significantly
14 concentrated within the Project Area. While the adjacent open fields within 0.5 mile
15 from the Project Area will have 86.1% of the overall potential visibility, potential Project
16 visibility is significantly reduced at distances beyond 0.5 mile. Views from areas beyond
17 one mile will be screened by a combination of small woodlots and hedgerows as well as
18 topography and forest vegetation associated with the creek valleys. Narrow corridors of
19 visibility could result from breaks in hedgerows separating neighboring fields. However,
20 due to the limited portion of the Project that would be visible, and the distance from the
21 Project, it is unlikely that the Project visibility within these narrow corridors would be
22 readily noticeable to a casual viewer.

1 Within a two-mile substation study area, while viewshed analysis identified a few areas
2 where the collection substation may be visible, factoring existing vegetation and
3 structures greatly reduces the potential visibility of the substation. Specifically,
4 vegetation and structures, in combination with topography, will serve to block views of
5 the proposed substation from approximately 64.2% of the two-mile study area. The
6 analysis indicates that the substation will be most viewable from open areas to the north
7 extending to State Route 665 (London-Lockbourne Rd.) and to the southeast across from
8 Hume Level Road. However, it is important to note that this is theoretical visibility,
9 which is conservatively based on five sample lighting mast locations within the
10 substation footprint. It ignores the very narrow profile and gray color of the masts, which
11 will make actual visibility much more difficult at greater distances.

12 Viewshed analysis suggested that 12 of the 26 visually sensitive resources identified
13 within the study area might have some level of project visibility (details regarding each
14 resource can be found in Table 4 in the Exhibit T). Three of these resources are located
15 2.5 miles or greater away from the Project. While these resources have some level of
16 partial Project visibility, the areas of visibility consist of small, almost imperceptible
17 speckles of visual area and the view would be of fleeting and short duration. Six of the
18 visual resources, which includes Madison Lake State Park, the Camp Chase Multi-use
19 Trail, and the Ohio to Erie Trail, are greater than one mile away from the Project. From
20 each of these resources, particularly Madison Lake State Park, views of the Project are
21 very unlikely due to the lack of areas of contiguous visibility. Exceptions may occur
22 along discrete portions of State Routes 665 and 56, where more pronounced but narrow
23 corridors of visibility cross the highways. The remaining three resources are the Hamlet

1 of Big Plain (0.9 mile from the Project), Madison Lake (0.8 mile from the Project), and
2 Wildlife Production Area 55 which is directly adjacent to the Project Area. The Hamlet
3 of Big Plain has large areas of contiguous visibility along its northern and western edges.
4 Similar to the Madison Lake State Park, Madison Lake itself has speckled areas of
5 visibility that are unlikely to indicate actual views of the Project. Wildlife Production
6 Area 55, which borders the Project Site, is likely to have visibility from small areas due
7 to the presence of a hedgerow between this resource and the Project site.

8 Field review confirmed the viewshed analysis results. Project visibility was largely
9 restricted to areas adjacent to the Project where public roads are bordered by open
10 agricultural fields. These include County Route (“CR”) 4 (Big Plain Circleville Road),
11 CR 70 (Glade Run Road), and small area along CR 63 (Hume Lever Road). Further,
12 field review confirmed that existing, dense hedgerows, residential structures, and
13 agricultural buildings will screen the Project from areas beyond one mile from the
14 Project. In the two higher density residential areas, the City of London, and the Village
15 of West Jefferson, visibility of the Project will be fully screened by topography, homes,
16 and landscape vegetation. In most cases, visibility of the Project will not be available
17 from residences within the visual study area, with the exception of approximately 30
18 homes located along the areas of roadway described above. During the growing season,
19 visibility of the Project from these residences and roadways may also be limited by crop
20 (corn) growth in the foreground agricultural fields. The combination of relatively low
21 panel height, along with existing hedgerows, gently rolling topographic relief, and the
22 atmospheric effects of distance, will limit visibility of the Project from the majority of the
23 visual study area, confirming the results of the viewshed analysis.

1 Finally, visual simulations from four representative locations confirmed the results of the
2 viewshed analysis and field review. The visual simulations illustrate that visibility of the
3 solar panels from distances between 600 and 900 feet will generally result in limited
4 visual impacts. Additionally, in certain locations, views of the Project may be available
5 from within 200 feet. However, in most cases setbacks from public rights of way and
6 from most resources within the visual study area resulting in minimal visibility and visual
7 impact. Combining the setbacks and siting of the Project with conceptual native
8 vegetative mitigation further minimalizes the visual impact from adjacent roadways and
9 residences.

10 **Q.9. What were the results of the updated viewshed analysis which the Applicant filed on**
11 **the docket with its Notice of Footprint Modification on November 30, 2020?**

12 **A.9.** The Applicant submitted the Notice of Footprint Modification to allow for a
13 change in the location of the collection substation to minimize impacts to state
14 jurisdictional wetlands. The substation was moved approximately 0.4 mile northwest. As
15 I explained in my updated viewshed analysis, which is attached as Exhibit D to the
16 Notice, the shift in the location of the substation results in a 6.2% reduction in substation
17 visibility within the two-mile substation visual study area compared to the results in the
18 Application. Based on this reduction, I anticipate no additional impacts to visually
19 sensitive receptors. Furthermore, the new location of the substation does not change the
20 conclusions of the previous evaluation I conducted for the Application.

21 **Q.10. Are measures being proposed to mitigate potential Project visibility and visual**
22 **impact?**

23 **A.10.** Yes, approaches to visual mitigation for this Project include the following:

- configuration of solar panels less than 15 feet in height,
- selecting a site with a relatively few number of visually sensitive resources, and
- a setback of 50 feet from panels to a non-participating property line.

The Applicant is proposing both fencing and vegetative screening to further reduce impacts to nearby residences and town roads. Specifically, the Applicant proposes to use vegetative screening that will vertically soften the horizontal line created by the solar panels and fenceline and aid in blending the Project into the background vegetation.

Vegetative mitigation represented in the visual simulations, which are part of Exhibit T, is conceptual at this time and subject to change. Design methodology and Project goals for the visual mitigation will not change, however, during the development of construction documents and the implementation of the finalized plans.

The Applicant has submitted a layout of proposed seeding and landscaping for the area immediately around the fencing as part of its Application (Exhibit 10 of Exhibit I, Habitat Assessment Report). The Applicant has also submitted a list of forbs and grasses that will be planted under the area and in buffer areas within the Project fence (Appendix H of Exhibit I, Habitat Assessment Report). Finally, Condition 12 requires the Applicant to submit a finalized landscape and lighting plan, which will further mitigate Project visibility and impact. I also discuss this condition further below.

Q.11. What has been your experience in the use of planting and vegetation to screen previous projects?

A.11. The different plantings and vegetation that EDR would recommend and design for the Project are similar to those that I have used previously to reduce the visual impact of substations and new construction, which in general are taller than solar panels and more

visually impactful before the use of screening and mitigation. I have had good success mitigating the impact of substations, and I would expect similar mitigation to be successful for the Project as well.

Q. 12. Does the type of planting or mitigation you would design or recommend vary based on the size of the project?

A.12. Not substantially. The vast majority of a solar farm does not result in any visual impact, because it is in the “internal” part of the project distant from any potential viewer. Mitigation strategies are typically used only around the borders of a project, so whether a project encompasses tens, hundreds, or thousands of acres, visual impact most often occurs on the perimeter of a project, allowing for similar mitigation approaches.

Q.13. Is glare from solar panels as described in the Project Application a concern?

A.13. No. Solar panels are designed to maximize energy production by capturing as much light as possible, which means that they inherently have low levels of glare from reflection of sunlight. In fact, the potential for reflectivity or glare from solar panels is generally lower than the glare and reflectance generated by common surfaces in the surrounding environment, including, grasslands, water and glass. Solar panels are designed to absorb as much of the solar spectrum as possible to maximize electricity generation, and there is an inverse correlation between light absorption by the solar panels and reflection from them. For instance, virtually all solar panels installed in recent years incorporate anti-reflective coatings to minimize reflection and maximize absorption.

The reflectivity of a surface is often measured as albedo, which is the fraction of solar energy reflected by that surface. For comparison, the albedo of solar panels (0.10-0.30)

1 is generally similar to, or lower than many natural surfaces such as coniferous forests
2 (0.20), grasslands (0.25), dry sand (0.45), and snow cover (0.50). Furthermore, the glare
3 and reflectivity of solar panels have been found to be lower than the glare and reflectivity
4 generated by standard glass.

5 **Q.14. Do you support Condition 12 of the Joint Stipulation?**

6 **A.14.** Yes, as I mentioned earlier, the Applicant has already submitted a layout of
7 proposed screening and landscaping (Exhibit 10 of Exhibit I, Habitat Assessment Report)
8 and a list of forbs and grasses that will be planted under the area and in buffer areas
9 within the Project fence (Appendix H of Exhibit I, Habitat Assessment Report). Pursuant
10 to Condition 12, the Applicant will submit a landscape and lighting plan to the Ohio
11 Power Siting Board Staff prior to the start of construction. The condition ensures an
12 effective visual mitigation plan, focused on the line of sight from residences on non-
13 participating parcels, is developed in consultation with an Ohio licensed landscape
14 architect prior to commencement of any construction.

15 There are two important prongs to Condition 12 that will benefit adjacent landowners.
16 First, the Applicant will replace any failed plantings during the first five years after
17 construction to ensure that at least 90% of the vegetation has survived as of the five-year
18 point. The purpose of the five-year period is to allow plantings to become established.
19 Second, Condition 12 requires the Applicant to maintain vegetative screening for the life
20 of the Project. To ensure vegetative screening modules are functioning as designed, the
21 second prong requires the Applicant to replace failed plantings within a screening module
22 if necessary to ensure the screening module remains effective at that location. The
23 requirement in Condition 12 to maintain vegetative screening for the life of the Project

1 will also ensure that any plant die-off during the life of the Project will not result in gaps
2 in screening modules.

3 Additionally, Condition 12 requires the Applicant to submit a lighting plan prior to
4 construction. The Applicant has committed to minimize lighting to the greatest extent
5 practicable, using shielded lights that are directed downward. Computer-based modeling
6 will be used to determine the most efficient and effective layout for lighting based on
7 final Project design. Condition 12 also ensures the Project's perimeter lighting shall be
8 motion-activated, downward facing, and/or fitted with side shields in order to narrowly
9 focus the light inward towards the Project, thereby limiting lighting impacts. Overall, the
10 requirements in Condition 12 will further ensure that the visual impact of the Project is
11 minimized through proper siting combined with well-developed landscape and lighting
12 plans.

13 **Q.15. What is your overall assessment of the potential visual impact of the Madison Solar**
14 **Project?**

15 **A.15.** The results of the viewshed analysis, field review, and visual simulations
16 performed by EDR indicate that the proposed solar panels and substation should be
17 screened from view in over 87.9% of the five-mile radius visual study area. Where views
18 of the Project are available, its visibility and visual impact will be substantially diminish
19 at distances beyond 0.5 mile. Between 0.5 miles and two miles, only small areas of
20 potential visibility exist. Where visible, the Project will introduce a new contrasting use
21 to the landscape. However, as noted in my testimony above, the existing screening
22 provided by topography, structures, and vegetation, along with the Applicant's use of
23 setbacks and plantings in coordination with Condition 12, will soften the visual effect of

1 the Project. Condition 12 of the Joint Stipulation also ensures that visual impacts from
2 Project lighting will be minimal through the use of lighting that is motion activated,
3 downward facing, and/or fitted with side shields in order to narrowly focus the light
4 inward towards the Project.

5 **Q.16. Does this conclude your direct testimony?**

6 **A.16.** Yes, it does.

CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served upon the persons below via electronic mail this 22nd day of January 2021.

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Summary: Testimony Direct Testimony of Matthew Robinson electronically filed by Ms. Anna Sanyal on behalf of Big Plain Solar, LLC